

REMARKS

This Amendment After Final Rejection is submitted in response to the outstanding final Office Action, dated May 25, 2010. Claims 1 through 24 are presently pending in the above-identified patent application. In this response, Applicants propose to amend claims 1 and 21-23.

This amendment is submitted pursuant to 37 CFR §1.116 and should be entered. The Amendment places all of the pending claims, i.e., claims 1 through 24, in a form that is believed allowable, and, in any event, in a better form for appeal. It is believed that examination of the pending claims as amended, which are consistent with the previous record herein, will not place any substantial burden on the Examiner. In any case, a Request for Continued Examination is being submitted herewith.

In the Office Action, the Examiner rejected claims 1-22 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-4, 6, 21, 22 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Devi (United States Patent Publication No. 2003/0147400; hereinafter Devi), in view of Elie-Dit-Cosaque et al. (United States Patent Publication Number 2004/0218525; hereinafter Elie-Dit-Cosaque), in view of Aukia et al. (United States Patent Number 6,594,268; hereinafter Aukia), and further in view of Soumiya et al. (United States Patent Publication No. 2001/0037401 A1; hereinafter Soumiya). Claims 5, 7-9, 13 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Devi in view of Elie-Dit-Cosaque, in view of Aukia in view of Soumiya, and further in view of Szviatovszki et al. (United States Patent Number 6,956,821; hereinafter Szviatovszki), and claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Szviatovszki and in view of Shabtay et al. (United States Patent Number 6,895,441; hereinafter Shabtay), and further in view of Hameleers et al. (United States Patent Publication No. 2001/0026549; hereinafter Hameleers). The Examiner indicated that claims 10-12, 14, 15, and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Section 112 Rejections

Claims 1-22 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 1, 21, and 22, the Examiner asserts that there is insufficient antecedent basis for the limitation “the request.”

Applicants note that the claims 1, 21, and 22 have been amended to correct the antecedent basis of the cited term and respectfully request that the section 112 rejections be withdrawn.

Independent Claims 1, 21 and 22

Independent claims 1, 21, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Devi, in view of Elie-Dit-Cosaque, in view of Aukia et al, and further in view of Soumiya. In particular, the Examiner asserts that Devi discloses determining, in response to a request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one requirement corresponding to the request (claims 1 and 8 and paragraphs [0018] and [0019]), wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network (claim 5 and paragraphs [0007], [0020], and [0025]) using at least traffic demand estimates, network topology information, and by performing routing for the substantially maximized carried demand (FIGS. 1 and 2; paragraphs [0004]-[0005], [0014], [0026], and [0028]-[0029]). The Examiner acknowledges that Devi as modified by Elie-Dit-Cosaque as modified by Aukia fails to explicitly disclose selecting one of said predetermined paths based on current load measurement at a source node, but asserts that Soumiya discloses the cited limitation (FIGS. 1A and 1B; abstract; paragraph [0232]).

Applicants note that independent claims 1, 21, and 22 have been amended to require determining, in response to a connection request, whether any path of a *plurality of predetermined paths between a source node and a destination node* meets at least one requirement corresponding to the connection request, wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network using at least traffic demand estimates and network topology information, and by performing routing for the substantially maximized carried demand; and *selecting one of said predetermined paths for said connection request based on a current load measurement*, wherein said current load

measurement is measured at a source node, if a given path meeting the at least one requirement is found.

As the Examiner acknowledges, Devi as modified by Elie-Dit-Cosaque as modified by Aukia does *not* disclose or suggest *selecting one of said predetermined paths for a connection between a source node and a destination node based on a current load measurement*, wherein said current load measurement is *measured at a source node*. Furthermore, Applicants note that Soumiya is directed to “distributing the load between the set routes among a plurality of routes.” (See, abstract and FIG. 1A.) Soumiya does *not* address the subject of selecting a path for a requested connection (known in the art as “call admission”) and does *not* disclose or suggest *selecting one of said predetermined paths for a requested connection between a source node and a destination node based on a current load measurement*. Neither Devi nor Elie-Dit-Cosaque nor Aukia nor Soumiya, alone or in combination, disclose or suggest *selecting a predetermined path for a connection request (between a source node and a destination node) based on a current load measurement measured at a source node*, as required by independent claims 1, 21, and 22, as amended.

Applicants also note that, as the Examiner previously acknowledged, Aukia discloses a technique similar to OSPF and teaches that each node in the network determines, in a distributed manner, *the path for the source-destination pair that traverses the node*. In fact, OSPF is well known to require that each node in the network determines, in a *distributed* manner, *the path for the source-destination pair that traverses the node*.

Thus, even as combined in the manner suggested by the Examiner, Devi and Aukia *do not teach every element of the independent claims*. Furthermore, based on the KSR considerations discussed hereinafter, the combination/modification suggested by the Examiner is not appropriate.

KSR Considerations

An Examiner must establish “an apparent reason to combine ... known elements.” *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). Here, the Examiner merely states that it would have been obvious to incorporate defining the network topology, traffic characteristics and demand for service as taught by Aukia to the optimization method based on demand estimate as disclosed by Devi as modified by Elie-Dit-Cosaque for the

purpose of maximizing revenue based on current and past history of data traffic of a router.

Applicants, however, are claiming a new technique for traffic engineering in a network-based communication system wherein a *predetermined path for a requested connection (between a source node and a destination node) is selected from a plurality of predetermined paths based on a current load measurement measured at a source node*. There is no suggestion in Devi, Elie-Dit-Cosaque, Aukia, and Soumiya, alone or in combination, to *select a predetermined path for a connection request (between a source node and a destination node) from a plurality of predetermined paths based on a current load measurement measured at a source node*.

Furthermore, Aukia's teaching to have *each node along a path compute its own route to a next node teaches away* from the present invention's. The KSR Court discussed in some detail United States v. Adams, 383 U.S. 39 (1966), stating in part that in that case, "[t]he Court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." (KSR Opinion at p. 12). Thus, there is no reason to make the asserted combination/modification.

In the Response to Arguments section of the final Office Action, the Examiner asserts that Applicants have argued that the Examiner acknowledged that "the combination of Aukia's teachings with other references could not be used for rejecting the claims." Applicants, however, find *no* argument in the previous response claiming that the Examiner has acknowledged that "the combination of Aukia's teachings with other references could not be used for rejecting the claims" and respectfully request that the Examiner provide the page number of the cited argument.

In the Response to Arguments section of the final Office Action, the Examiner asserts that Applicants' arguments attack the references individually. Applicants note that the arguments were presented not to attack the references individually, but to emphasize that *several limitations are not disclosed by any of the cited references*.

Thus, Devi, Elie-Dit-Cosaque, Aukia, and Soumiya, alone or in combination, do not disclose or suggest determining, in response to a connection request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one

requirement corresponding to the request, wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network using at least traffic demand estimates and network topology information, and by performing routing for the substantially maximized carried demand; and selecting one of said predetermined paths for said
5 connection request based on a current load measurement, wherein said current load measurement is measured at a source node, if a given path meeting the at least one requirement is found, as required by independent claims 1, 21, and 22, as amended.

Independent Claim 23

Independent claim 23 was rejected under 35 U.S.C. §103(a) as being unpatentable
10 over Szviovski in view of Shabtay, and further in view of Hameleers et al. Regarding claim 23, the Examiner acknowledges that Szviovski does not expressly disclose that, if a length of the second shortest path is equivalent to a length of the first shortest path, attempting to create a connection on the second shortest path, but asserts that it would have been obvious to a person of ordinary skill in the art to attempt to create a connection on either the first shortest path or the
15 second shortest path (col. 13, lines 10-30, and Table 1). The Examiner acknowledges that Szviovski does not disclose, but asserts that Shabtay discloses that, if a length of the second shortest path is not equivalent to a length of the first shortest path, performing the following steps (col. 5, lines 18-19; col. 4, lines 14-21; col. 5, lines 12-22; and col. 4, lines 35-42 and 61-67): pruning edges not having a second available bandwidth from the first pruned network, thereby creating a second pruned network (col. 5, lines 19-22); computing a third shortest path
20 between the source node and destination node using the second pruned network (col. 5, lines 19-22); and attempting to create a connection on the third shortest path (col. 5, lines 19-22). The Examiner previously asserted that “the length information is provided by OSPF protocol, or that it is combined by bandwidth availability information of the links to utilize rerouting
25 mechanism.” In the Response to Arguments section of the previous final Office Action, the Examiner asserted that the length information is considered as the length of a path as being smaller or smallest. The Examiner asserted that Applicant should clarify what the length information represents in the claim and should explain the differences between the Shortest Path and the length information. In the present Office Action, the Examiner asserts that Hameleers
30 discloses that one of the metrics of OSPF is the distance metric such as physical distance.

Also, in the Response to Arguments section of the final Office Action, the Examiner respectfully asserts that no argument can be found why a teaching of “preemption” provides any differences against Applicant’s claimed invention. Applicants agree that Szviatovszki’s teaching regarding “preemption” (as cited above) appears to be irrelevant to the claimed subject matter and note that it was only included in response to the Examiner’s use of this teaching in the previous rejection.

In the Response to Arguments section of the final Office Action, the Examiner asserts that there is no functional difference between choosing “the first of second shortest paths if a length of the second shortest path is equivalent to length of the first shortest path” and that “it is the matter of Design Choice.”

Applicants note that Szviatovszki does *not* disclose or suggest *attempting to create a connection on the second shortest path if a length of the second shortest path is equivalent to a length of the first shortest path*. The latter limitation requires that the *attempt to create a connection* is based on the condition that *a length of the second shortest path is equivalent to a length of the first shortest path* and is critical to the proper operation of the method. More particularly, if the *length of the second shortest path is equivalent to a length of the first shortest path*, the creation of the connection is attempted; *otherwise, the pruning operation continues*. Contrary to the Examiner’s assertion, choosing “the first of second shortest paths if a length of the second shortest path is equivalent to length of the first shortest path” is not merely a Design Choice. The cited limitations are patentably distinct features and are required for the proper operation of the pruning technique.

Applicants also note that the word “length” is defined as “the longest extent of anything as measured from end to end.” (See, dictionary.com.) In the text previously cited by the Examiner, Szviatovszki teaches that, “if two paths have different, highest-affected priority levels, the path with the lower priority level is chosen. But if the affected priority levels are the same, the ‘smaller’ path is selected with the lowest pre-empted bandwidth on the highest affected priority level.” (Col. 12, lines 37-43; emphasis added.) Contrary to the Examiner’s assertion, Szviatovszki does *not* disclose or suggest length information; Szviatovszki discloses priority levels and pre-empted bandwidth.

In addition, contrary to the Examiner's assertion, Shabtay utilizes an available bandwidth parameter (see, for example, col. 5, lines 18-19). Applicants could find *no* disclosure or suggestion of *length information* in Shabtay.

In the Response to Arguments section of the final Office Action, the Examiner asserts that the present specification teaches that the length for a path may be "a function of actual distance or other salient parameters used in the optimization criteria."

Applicants note that independent claim 23 has been amended to require "wherein said length is a measure of distance." Thus, independent claim 23 excludes "priority levels" and "pre-empted bandwidth" as the claimed "length" of a path.

Applicants also could find no disclosure or suggestion that the length information is provided by the OSPF protocol, or that it is combined by bandwidth availability information of the links to utilize a rerouting mechanism.

Regarding the Examiner's assertion that one of the metrics of OSPF is the distance metric such as physical distance, Applicants note that Hameller's teaching that OSPF supports distance metrics does *not* infer that a length of a second shortest path is computed and does *not* infer that a length of a second shortest path is used to determine if an attempt is made to create a connection on the second shortest path, or is used to determine if the following steps are performed:

pruning edges not having a second available bandwidth from the first pruned network, thereby creating a second pruned network;

computing a third shortest path between the source node and destination node using the second pruned network; and

attempting to create a connection on the third shortest path.

In the Response to Arguments section of the final Office Action, the Examiner asserts that Applicants' arguments attack the references individually. Applicants note that the arguments were presented not to attack the references individually, but to emphasize that *several limitations are not disclosed by any of the cited references*.

Thus, Szviatovszki, Shabtay, and Hameleers, alone or in combination, do not disclose or suggest a length of a second shortest path, and do not disclose or suggest computing a second shortest path between the source node and the destination node using the first pruned

network; if a length of the second shortest path is equivalent to a length of the first shortest path, attempting to create a connection on the second shortest path, wherein said length is a measure of distance; and if a length of the second shortest path is not equivalent to a length of the first shortest path, performing the following steps:

- 5 pruning edges not having a second available bandwidth from the
first pruned network, thereby creating a second pruned network;
 computing a third shortest path between the source node and
destination node using the second pruned network; and
 attempting to create a connection on the third shortest path,
10 as required by independent claim 23, as amended.

Dependent Claims 2-22 and 24

Claims 2-22 and 24 are dependent on independent claim 1 and are therefore patentably distinguished over Devi, Elie-Dit-Cosaque, Aukia, Shabtay, Szviatovszki, Soumiya, and Hameleers, alone or in combination, because of their dependency from amended
15 independent claim 1 for the reasons set forth above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 10-12, 14, 15, and 17-20 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Conclusion

20 All of the pending claims following entry of the amendments, i.e., claims 1-24, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The attention of the Examiner to this matter is appreciated.

Respectfully,



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